Evidence-Based Practice

Moving from Evidence to Action in the Management of Spinal Disorders

Presented to
Senior Leaders at AUSA

Presented by
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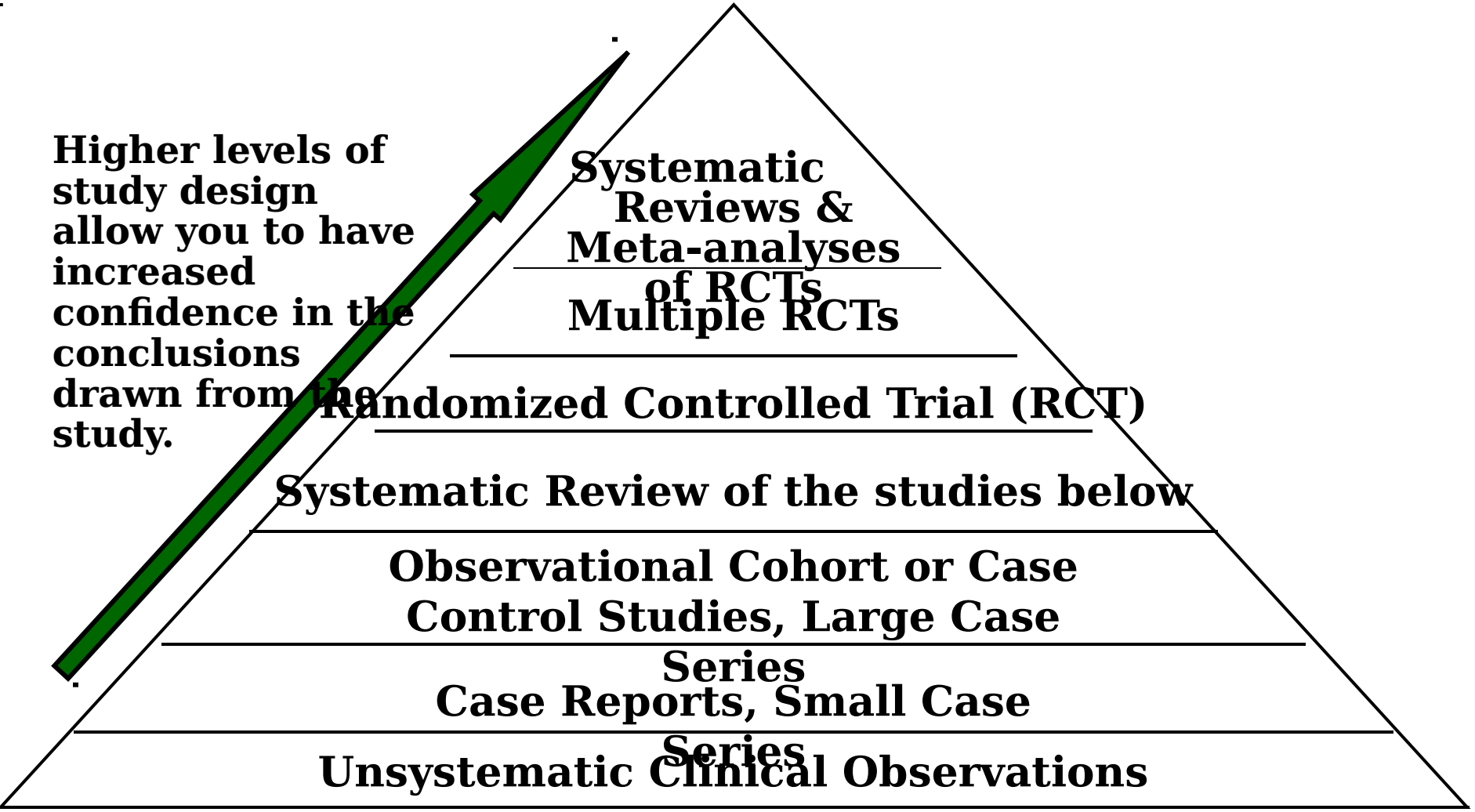
WELCOME
From all of us in San Antonio, TX. Home of the Spurs!

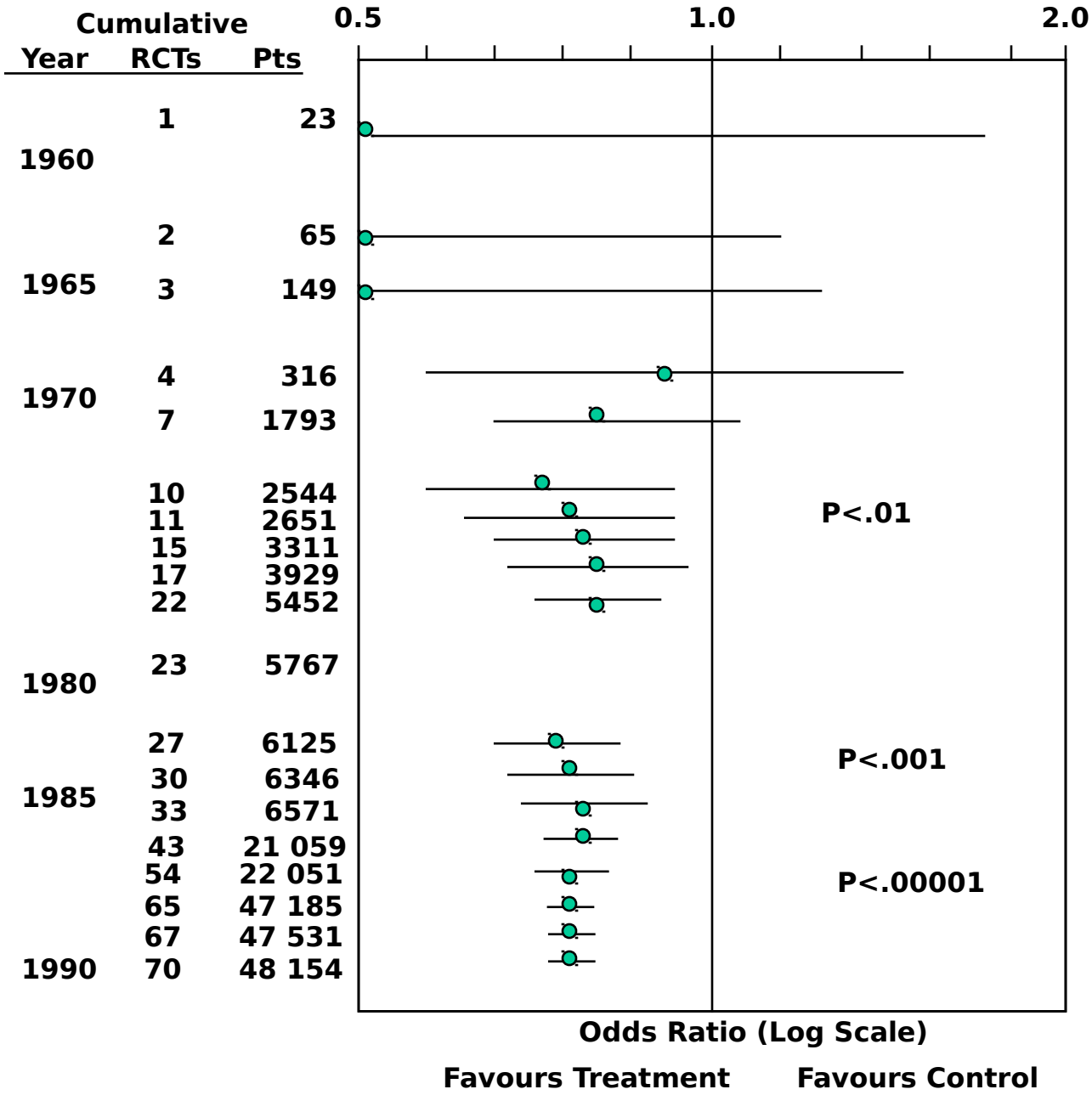
Evidence-Based Health Care

- *Evidence-based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients*.- Sackett et al. BMJ. 1996.
- *Evidence-based health care is a process of health care decision-making and related behaviors. Evidence-based health care means a strong commitment to keeping up-to-date with changing and improving health care innovations that are reported in the literature*.– McKibbon, 1999.
- Is this just a bunch of hype?
- As senior managers how do we leverage evidence in making informed decisions in the management of our populations health?

Hierarchy of Evidence for Treatment


Higher levels of study design allow you to have increased confidence in the conclusions drawn from the study.
Systematic Reviews & Meta-analyses of RCTs
Multiple RCTs
Randomized Controlled Trial (RCT)
Systematic Review of the studies below
Observational Cohort or Case Control Studies, Large Case Series
Case Reports, Small Case Series
Unsystematic Clinical Observations

Thrombolytic Therapy



Textbook/Review Recommendations

	Routine	Specific	Rare/Never	Experimental	Not Mentioned
					21
					5
				1	10
				1	2
				2	8
					7
					8
		1			12
M		1		8	4
M		1		7	3
M					
M	5	2		2	1
M	15	8			1
M	6	1			

Is knowing EBP enough?

- Knowing the tools of EBP is necessary but is not sufficient to provide/deliver quality patient care.
- In addition to clinical expertise, the clinician requires compassion, sensitive listening skills, and broad perspectives from the humanities & social sciences.
- How does that affect policy on the local and corporate level?

"Back pain is a 20th century medical disaster."- Waddell, 1998

- Costs continue to rise exponentially.
- LB disability continues to rise.
  - Simple back ache now disables many more people then all serious spinal pathologies put together.

Expert Quotes

Back pain diagnosis

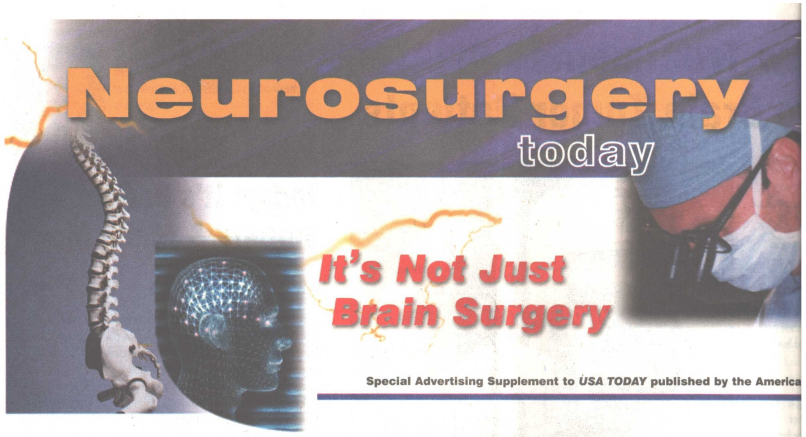
- “80% of back pain is caused by weak or tense muscles.”
- “The majority of LBP actually originates in the sacral ligaments.”
- “In 50% or more…the facet joint is the site of dysfunction.”
- “90-95% of back pain is due to disks.”
- “An extremely high percentage…have fascial problems.”
- “50%-70% of chronic symptoms are psychological in origin.”

EXTRA, EXTRA, Read…
The evidence source USA Today

"It's actually quite simple," said Robert F. Heary, MD, *Neurosurgery Today* spine editor and a neurosurgeon in New Jersey. "In about 90 percent of all low back pain cases, a nerve that travels from the spinal cord through the bones of the spine gets

The majority of back pain is caused by nerves, not muscles, ligaments or bones.

pinched or irritated, the muscles tense up and the patient experiences low back pain. The solution depends on why the nerve is irritated in the first place."



Low Back Pain: Getting to the Root of

A persistent ache in the lower back. Shooting pains down the legs. Muscles so tight you can't even stand up straight. For the more than 65 million Americans who suffer from low back pain every year, the symptoms come in different forms, but the problem is frequently the

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The spinal column is an intric
discs and bones. The spinal co
and is protected by the spinal c
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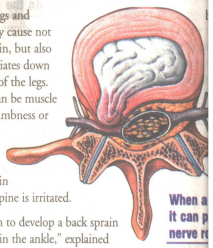
function of the body is controlled by the spinal cord. Motor nerves lead out of the spinal cord to control movement in the body, while sensory nerves enter into the spinal cord communicating messages from the body back to the brain. Together, the motor and sensory nerves form more than 50 nerve roots, which run through holes, called foramina, in the bone of the spinal column. Each one of these nerve root has the potential to become irritated and cause back pain.

A so flexible disc that acts as a shock absorber and furth protects the spinal cord separates each of the bones, or vertebra, in the spine. These discs have a rigid outside rim, but are soft and gel-like inside.

"Activity, stress or a mechanical problem in the spine can cause one of the discs to bulge and become misshapen just as a rubber tire might with pressure on it," Dr. Heary said. "When this happens, the disc may pinch or put pressure on a ne e root and the patient experiences pain. This is what frequently happens in a mild or moderate case

lead to the legs and irritation may cause not only back pain, but also pain that radiates down one or both of the legs. There also can be muscle weakness, numbness or changes in the reflexes in the legs if a nerve root in the lumbar spine is irritated.



"It's common to develop a back sprain like a sprain in the ankle," explained Stewart B. Dunsker, MD, President-Elect of AANS and a neurosurgeon practicing in Ohio. "Even mild episodes of low back pain usually involve some sort of irritation of the nerves in the spine. The key to that initial treatment is to relieve the nerve irritation."

Stopping the Nerve Irritation

Although low back pain can be quite debilitating

When a
it can p
nerve r

Friday, April 10, 200

Do we know what causes most LBP?

- **We can only diagnose definite pathology in about 15% of patients with LBP.**
- **There is very little relationship between physical pathology & associated pain and disability.**
- **We regard back pain as an injury, but most episodes occur spontaneously with normal everyday activities.**
- **High-tech imaging tells us very little about simple backache.**
- **In truth, the exact pathoanatomical lesion remains resistant to traditional clinical triage in the majority of patients.**

Experts Quotes (cont.)

Treatment success

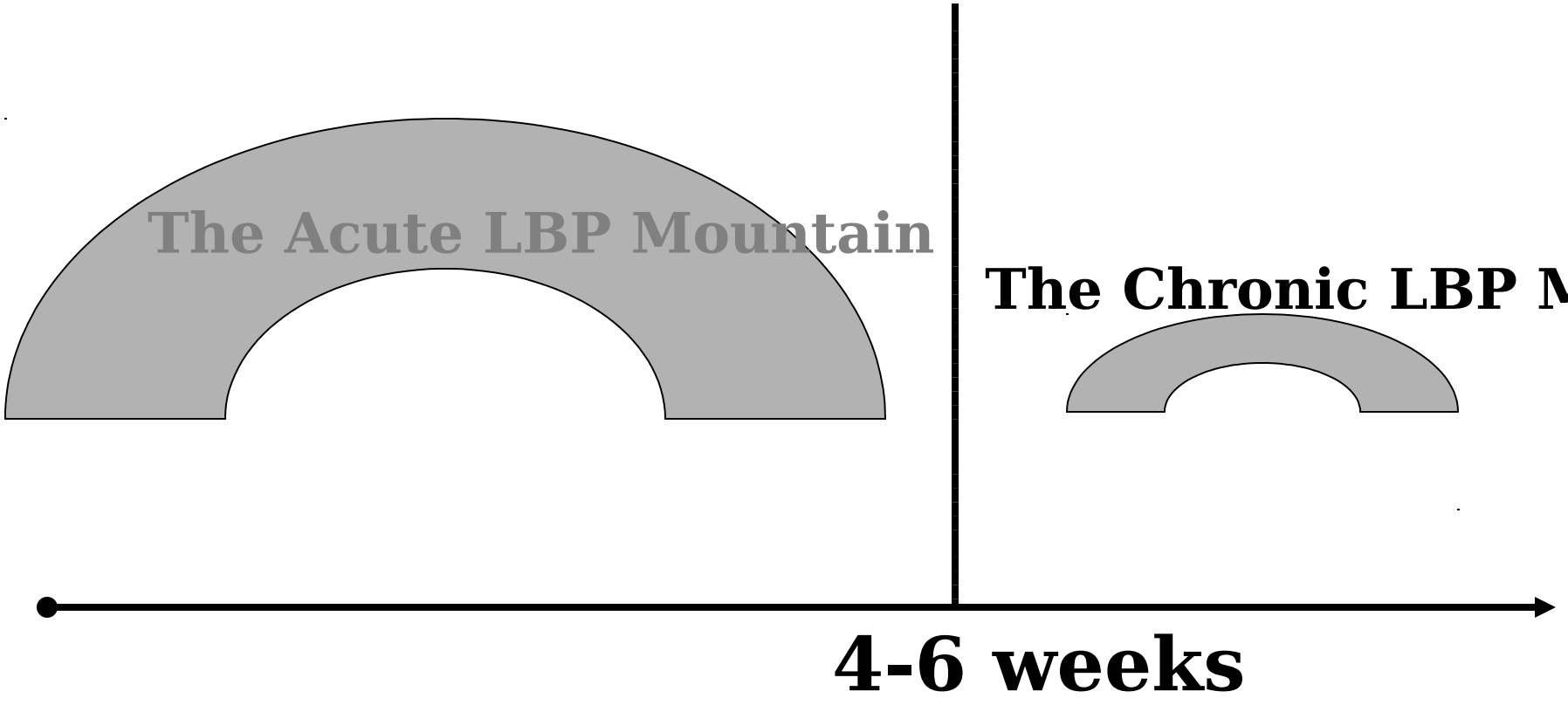
- “Mobilization and manipulation studies claim an 80% success rate.”
- “80% of low back pain patients get immediate relief with epidural blocks.”
- “In the YMCA’s exercise program, 80% improve…”
- “With microcurrent therapy…82% were pain free with 10 treatments.”
- “70%-80% of those carefully screened for radicular symptoms benefit from surgery.”

Epidemiology of LBP

- **About 35-40% of adults report low back pain each year.**
- **This is commonly associated with other bodily symptoms.**
- **The lifetime prevalence of true sciatica is < 5%.**

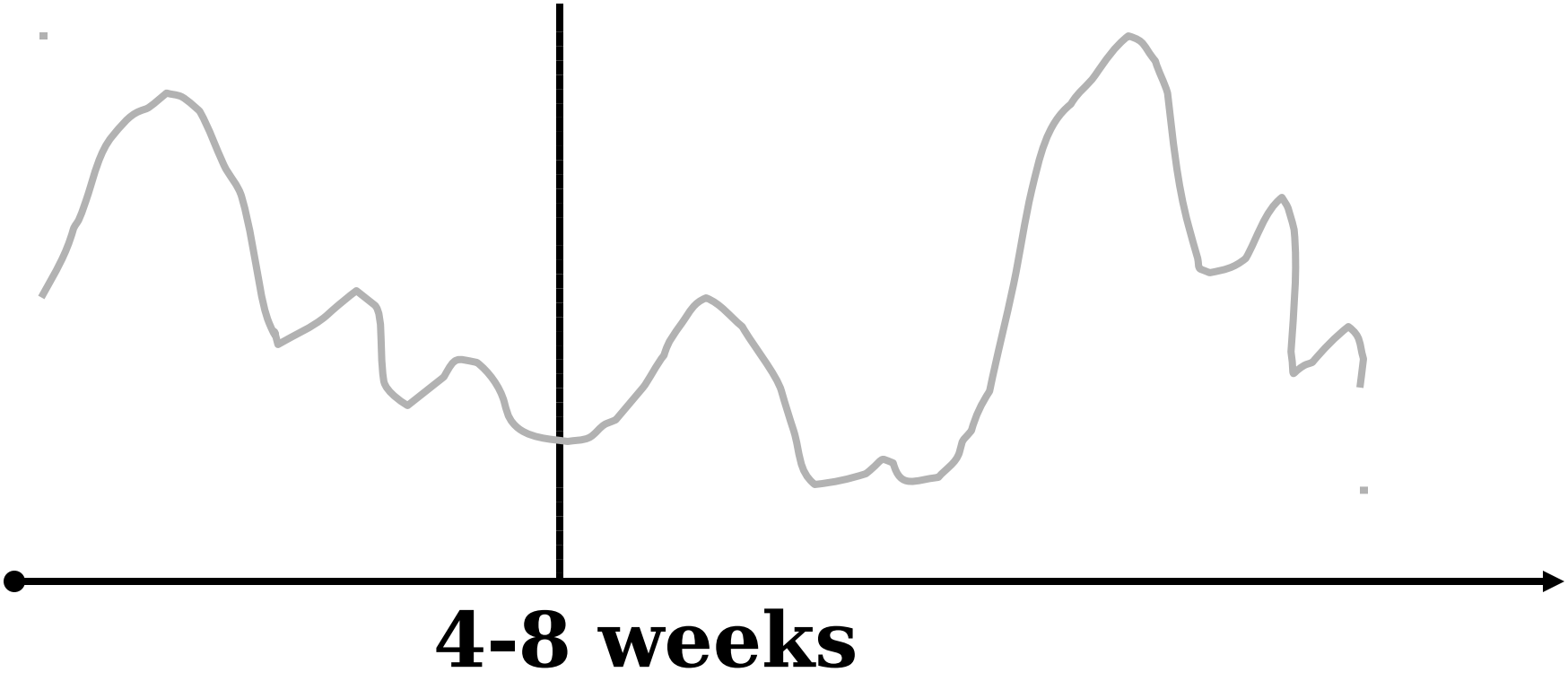
Epidemiology of LBP

Traditional Clinical Concept



Actual Epidemiology of LBP

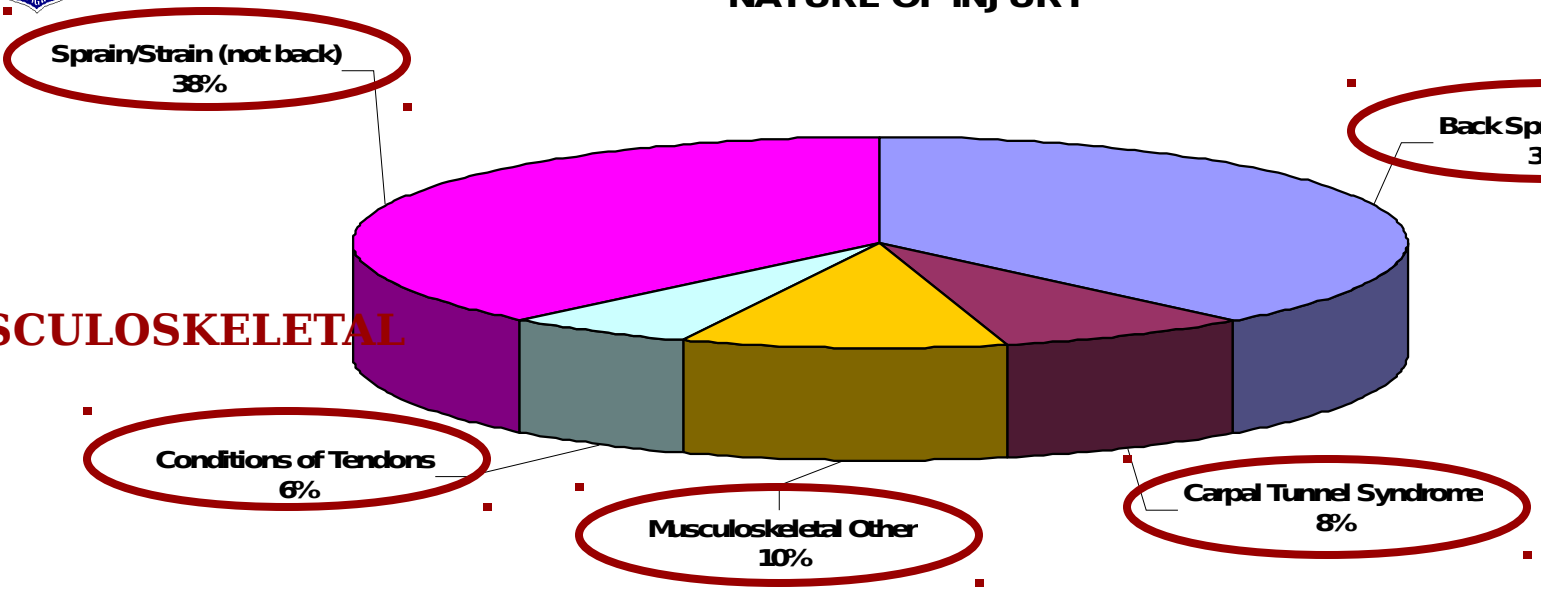
A prospective trial noted that while 90% of subjects consulting general practice with low back pain ceased to consult about the symptoms within three months, most still had substantial low back pain and disability. - Croft et al., 1998



MEDCOM Ergonomic Injuries

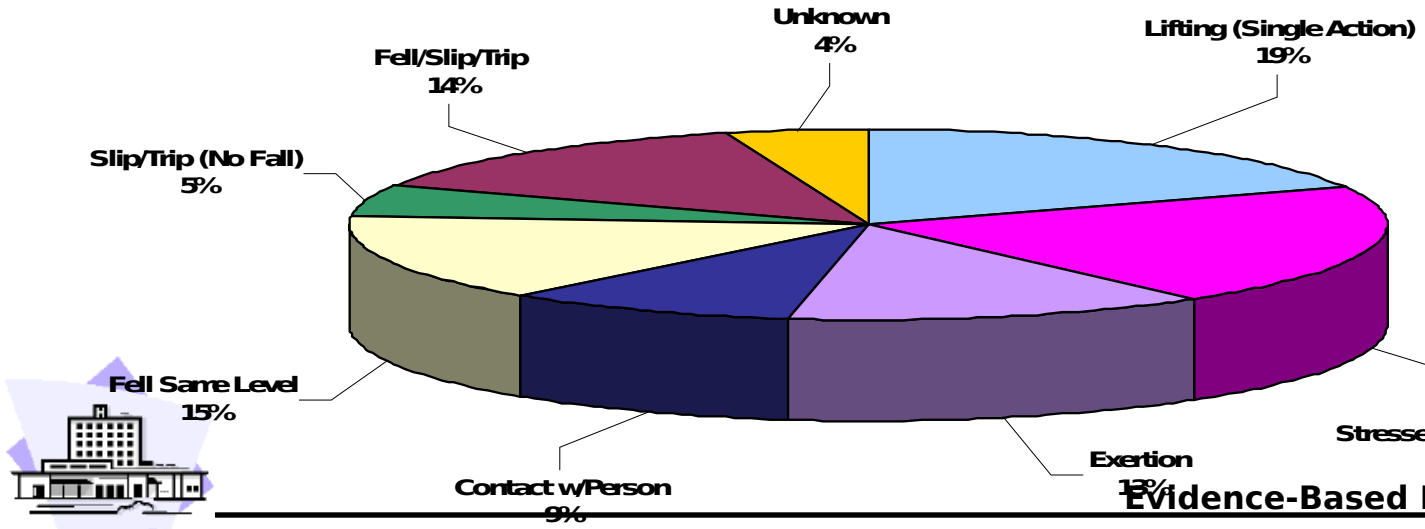
(New Injury Claims Generated Fiscal Year 2000 thru 2003)

NATURE OF INJ URY



MUSCULOSKELETAL

TYPE OF INJ URY (What Doing?)



Source: Workers Comp & Occ Safety & Hlth Mgmt Info System

REVOLUTION

It is time...

Evidence for Therapies in the Management of LBP

- **Manipulation-** In acute and sub-acute back pain, manipulation provides better short-term improvement in pain and activity levels and higher patient satisfaction than the treatments to which it has been compared. (Over 36 RCTs of manipulation for low back pain)

- **NSAIDs-** prescribed at regular intervals effectively reduce simple backache. (51 RCTs)

- **Exercise-** In 1999, specific exercise therapy is not more effective then other active therapies for the treatment of acute low back pain.Exercises may be helpful for chronic low back pain patients to increase return to normal daily activities and work. (39 RCTs) Long-term results suggest that specific exercise therapy in addition to resumption of normal activity may be more effective in reducing low back pain recurrences than medical management and normal activity alone. (Hides et al., 2001 O'Sullivan, 1997)

Evidence for Harm

Intervention	Reported Risk	Est # / 10,000	Potential Complication
Lumbo-Sacral Manipulation	**1 / 10,000,000**	**0.001**	**Cauda Equina**
Intense Exercise	**1/1,500,000**	**0.006**	**Sudden Death**
NSAIDS	**1- 3 / 100**	**100 – 300**	**GI bleed**
Disc Surgery	**3.8 – 21 / 10,000**	**4 – 21**	**Vascular or Visceral Injuries**
Epidural Injection (w/ fluoroscopy)	**8 – 11 / 100**	**800 - 1100**	**Intravascular Injection**
Fusion	**17 / 100**	**1700**	**Death/Varied**

Comparative Analysis- NSAIDs

- Major side effect involve the GI tract, and 1% to 3% of users are thought to develop GI bleeding as a consequence.[1]
- Each year, 7,600 deaths and 76,000 hospitalizations in the U.S. may be attributable to NSAIDs.[2]

[1]Tannenebaum et al. Can Med Assoc J 155:77-88, 1996.
[2]Tamblyn, et al. Ann Int Med 127:429-438, 1997.

Evidence for Early ACCESS

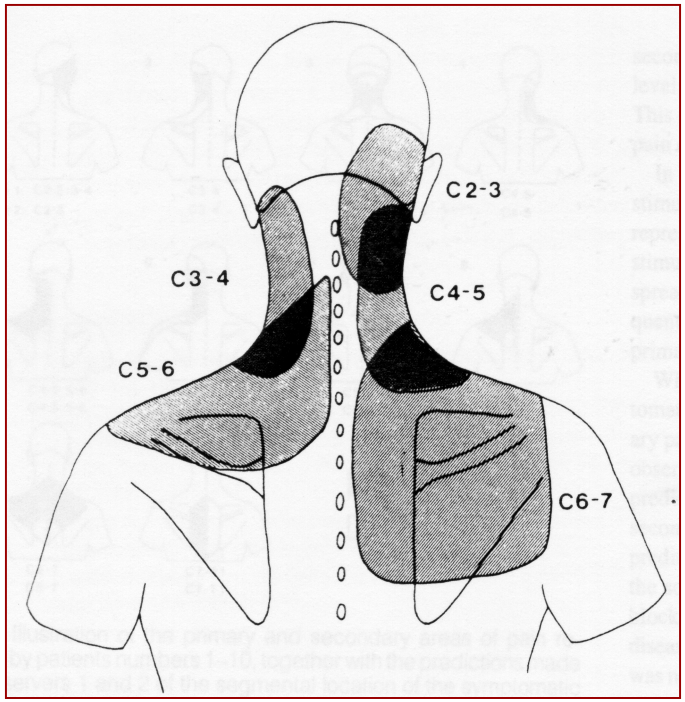
- Costs of physician referral to physical therapy are 123% higher than direct access care and generate 60% more office visits.[1]
- The earlier physical therapists intervene in individuals with Low Back complaints, the fewer physician visits are required.[2]
- Physical therapists in direct access roles have been shown to be as effective as orthopaedic surgeons in the nonoperative management of musculoskeletal complaints and patients report higher satisfaction with physical therapy care.[3]
- **What barriers to access have you constructed?**

[1]Mitchell et al. Phys Ther 77:10-18, 1997.

[2]Zigenfus, et al. J Occup Environ Med 42:35-39, 2000.

[3]Weale et al. R Coll Surg Eng 77S:71-73, 1995.

How about neck pain?



Prevalence of Neck Pai

- 22% of population experiences neck pain (Brattburg, Pain, 1989)
- 13% point-prevalence

  (van der Donk, J Rheum, 1991)
- 14% chronic neck pain

  (Bovim, Spine, 1994)
- 15% physical therapy caseload

  (Hackett, BMJ, 1987)

Neck Pain: Manual Physical Therapy

(Hoving et al, Ann Intern Med, 2002)

- 183 patients; 3 groups; 6 wks Treatment
  - Manual Physical Therapy: Hands On (6 visits)
  - Physical Therapy: Exercise & stretch (12 visits)
  - GP management: meds, advice (4 visits)
- Results:
  - Perceived Recovery: “clinical success”
    - MT = 68.3%; PT = 50.8%; GP = 35.9%
  - Pain: MPT > PT > GP
- Conclusion: Manual therapy results in clinically important reduction in pain & increase in perceived recovery.

Neck Pain: Manual Physical Therapy
(Ingeborg et al, BMJ, 2003)

- 183 patients; 3 groups; 6 wks Rx
  - **SAME DATA SET AS PREVIOUS SLIDE**
- Results:
  - Manual Physical Therapy $402
  - Standard Physiotherapy $1167
  - General Practitioner $1241
- Conclusion: Manual therapy (spinal mobilization) was more effective and less costly than standard physiotherapy or general practitioner care.

How much evidence is required prior to taking action?

- What is the percentage of musculoskeletal complaints seen in your facility?
- In many MTFs, 50% of all the patient visits are for musculoskeletal problems.
- What is your MTF model for musculoskeletal care delivery?

How much evidence is required prior to taking action?

- We continue to place primary care physicians, nurse practitioners, and physician assistants as the entry-point to the system for all complaints.

- Point of entry to care should be dependent upon the skill set of the providers.

- PTs have more extensive training and practice in musculoskeletal management. Furthermore, only 18% of recently graduated medical doctors have demonstrated competency in musculoskeletal medicine. (Freedman, JBJS 80:1421-1427, 1998)

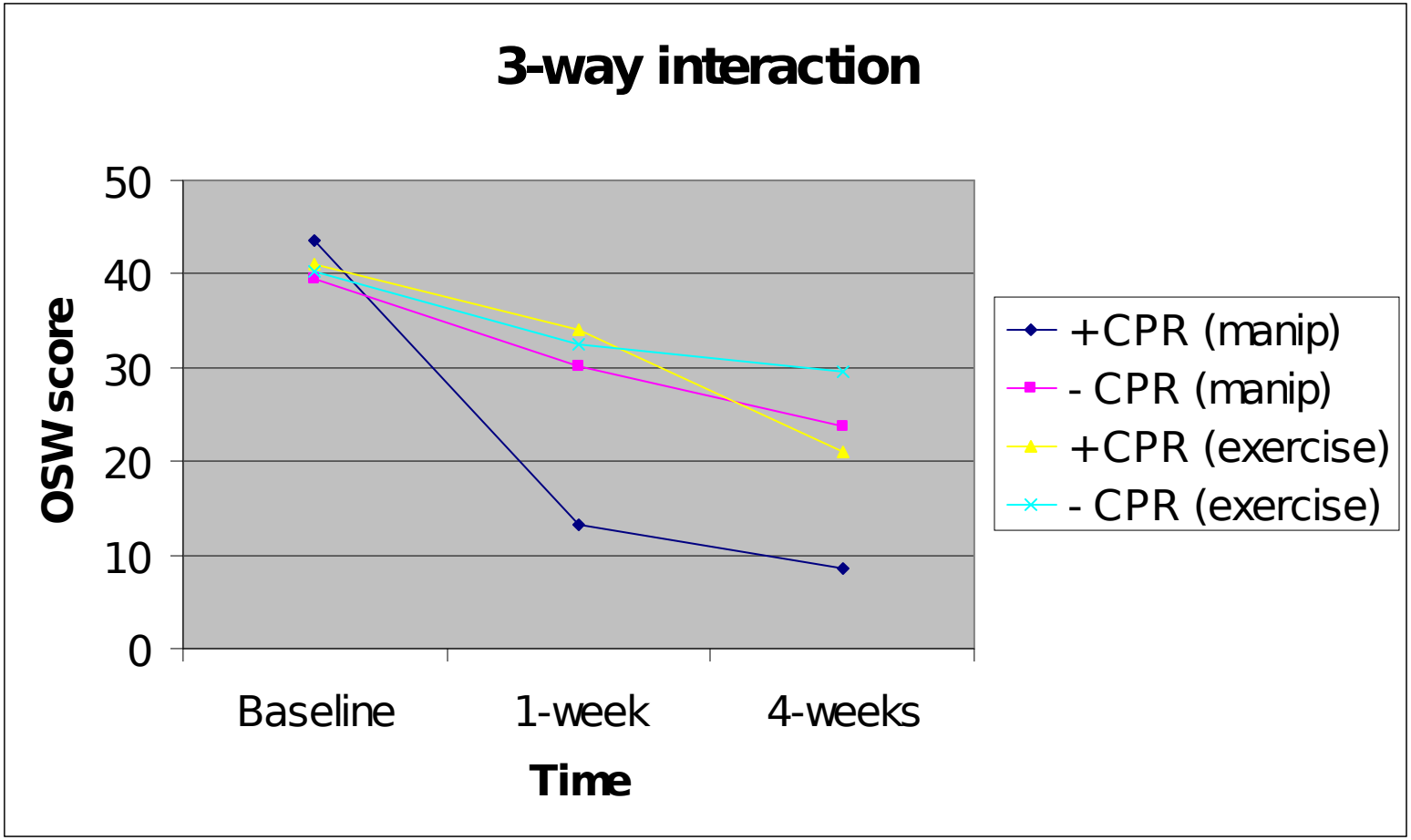
The Medical Model of Disease

(Waddell, *Spine* 1987, Engel, *Science* 1977)

- The biomedical model has transformed from a model into cultural dogma.
- All disease must be explained in terms of derangement of underlying physical mechanisms.
- Not all conditions appear to fit, this is particularly true for LBP and also true for much of musculoskeletal medicine.

What should be our

QUESTIONS


3-way interaction
OSW score
50
40
30
20
10
0
Baseline
1-week
4-weeks
Time
+CPR (manip)
- CPR (manip)
+CPR (exercise)
- CPR (exercise)